



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/273,801	03/19/1999	HI-CHAN MOON	678-246	7593

7590 05/07/2003

DILWORTH & BARRESE  
333 EARLE OVINGTON BOULEVARD  
UNIONDALE, NY 11553

EXAMINER

ELALLAM, AHMED

ART UNIT	PAPER NUMBER
----------	--------------

2662

DATE MAILED: 05/07/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/273,801

Applicant(s)

MOON, HI-CHAN

Examiner

AHMED ELALLAM

Art Unit

2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 February 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3 and 6-41 is/are pending<sup>2</sup> in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 6-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.                      6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This communication is responsive to amendment filed on February 12, 2003. The amendment has been entered.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 36- 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 36, 38 and 40 the phrase "inserts the side information into the delay time" is confusing, because a delay time is a time unit value and not a set or a sequence of bits to have been used for insertion.

Claims 37, 39 and 41 depends from claims 36, 38 and 40 respectively, thus they are subject to the same rejection.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 6, 8, 10-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley, III et al, US (5,461,639) in view of Bruckert, US (5,751,763).

3. Regarding claim 1, with reference to figure 4, Wheatley discloses an apparatus comprising:

- a channel encoder for encoding input data I(D) in a frame unit to generate encoded data symbols;

- a power control bit generator (claimed side information generator for generating side information);

- a puncturer;

- an interleaver;

- a Walsh codes generator 401 for spreading;

Wheatley also discloses puncturing all the bits that are in locations  $6n+3$  and  $6n+5$  and the puncturing the symbols can be carried out on different locations of the sequence symbol. See column 5, lines 10-17, and that puncturing is performed to lessen channel degradation, see column 8, lines 41-54.

Wheatley does not disclose a selector for generating a select control signal designating positions into which side information is inserted and side information inserter for inserting the side information between encoded data symbols in response to the select control signal.

However, with reference to Figure 7, Bruckert in the same field of endeavor discloses a power control bit (PCB) selector 705 in connection with a power control bit inserter 709 for inser

PCB into specific positions designated by (PCB) selector, see column 7, lines 62-67 and column lines 1-20.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the PCB insertion designated position apparatus of Bruckert the transmitter of Wheatley so that power control bits would be inserted in determined locations resulting in fast transmission power allocation.

Regarding claim 3, with reference to Figure 4, Wheatley discloses an interleaver for interleaving encoded data symbols and inserting PCB after interleaving punctured data streams

The difference between Wheatley and Applicant is that Wheatley does not puncture symbols to be use for side information insertion.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use to insertion of PCB insertion mechanism of Bruckert applied to the interleaved encoded symbols of Wheatley so that insertion of CPB would take place at the punctured positions.

Regarding claim 6, Wheatley discloses multiplexing of a power control bit with interleaved punctured symbols, see Figure 4. (Corresponding to the side information is a power control bit).

Regarding claim 8, Wheatley discloses puncturing all the bits that are in locations  $6n+3$  and  $6n+5$ . See column 5, lines 10-17. (Corresponding to periodically designating a position into which side information is inserted at preset interval).

Regarding claims 10-14, 16, claims 10-14, 16 are method claims and having substantially the same limitations as the respective apparatus claims 1-6, thus they are subject to the same rejection.

4. Claims 7, 9, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruckert in view of Wheatley as applied to claim 3 above, and further in view of Tiedemann Jr. et al, US (6,396,867).

Regarding claim 7, Bruckert in view of Wheatley discloses designating positions for control power bit insertion in a deterministic manner as indicated above in claim 3, except they don't disclose pseudorandom designation of position into which side information is inserted.

However, Tiedemann in the same field of endeavor discloses pseudo-random selection of position into which power control bits are punctured in. See column 6, lines 23-38.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the pseudo-random position selection within a power group of Tiedemann instead of the deterministic PCB insertion (side information insertion) of Bruckert in view of Wheatley, so that puncturing can be carried out only when it is needed thus resulting in more available bandwidth.

Regarding claim 9, Bruckert in view of Wheatley discloses substantially the same limitations of claim 9 as indicated above with reference to claim 7, except they do not

disclose using the least significant bits of a given number of a long code of a previous power control group.

However, Tiedemann discloses using the first 16 positions within a previous power group for PCB insertion. See column 6, lines 23-38.

Therefore, it would have been obvious to one ordinary person of skill in the art at the time of the invention to use the least significant bits of the long PN code of the power group of Tiedemann instead of the deterministic PCB (Power Control Bit) insertion of Bruckert in view of Wheatley so that non-ancillary information positions would be preserved for the main information.

Regarding claims 15, 17, claims 15 and 17 are method claims and having substantially the same limitations as the respective apparatus claims 7 and 9, thus they are subject to the same rejection.

5. Claims 18-20, 24-26 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bender et al, US (6366,778) in view of Bruckert, US (5,751,763).

Regarding claim 18, with reference to Figure 4 Bender disclose a block diagram of an encoder 400 for encoding a channel information bits transmitted by a base station transceiver (claimed transmitter), the encoder 400 receives as its input blocks of traffic channel information bits to be transmitted from a base station transceiver to a mobile station, Bender also discloses that the encoder append Cyclic Redundancy Check (CRC) bits to the information bits (410), appends tail bits to block code (420), Walsh covers to make the rates orthogonal, puncture to reduce the symbol to a number that

Art Unit: 2662

can be carried on one or two forward code channels, interleaves with a bit reversal block interleaver (470), scrambles the symbols, and optionally gates off 50 percent of the symbols. See column 9, lines 59-67 and column 10, lines 1-15. Bender further discloses that once the starting position of the power control command is determined, a BPSK symbol representing the power control command is inserted in place of the punctured symbols. See column 13, lines 64-67 and column 14, lines 1-7.

It is inherent to Bender that puncturing is carried out to lessen the channel degradation, because that is needed for the power control command insertion so that transmission power can be adjusted resulting in better channel quality.

Bender does not explicitly disclose a selector for generating a select control signal designating a position into which side information is inserted and side information inserter for inserting the side information between encoded data symbols in response to the select control signal.

However, with reference to Figure 7, Bruckert in the same field of endeavor discloses a power control bit (PCB) selector 705 in connection with a power control bit inserter 709 for insert PCB into specific positions designated by (PCB) selector, see column 7, lines 62-67 and column lines 1-20.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the PCB insertion designated position apparatus of Bruckert the transmitter of Bender so that power control bits would be inserted in determined punctured



locations resulting in fast power control mechanism and subsequently lessening channel degradation.

Regarding claims 19 and 20, Bender discloses substantially all the limitations of claim 19, except it does not disclose puncturing the output symbols of the encoder in consideration of the number of side information.

Bender does not explicitly disclose puncturing data symbol by the number of symbols of side information.

However, with reference to Figure 7, Bruckert discloses inserting PCB at predetermined location in correspondence with punctured symbols, see column 7, lines 62-67 and column 8, lines 1-20.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Bruckert PCB insertion mechanism in Bender system so that Bender's punctured locations would be inserted accordingly with ancillary information as needed.

Regarding claims 24 and 30, claim 24 is an apparatus claim that have the same limitations as the method claim 30, In addition claim 24 recites a transmitter and a receiver limitations, the transmitter limitations are the same as in claim 18 above, thus the transmitter limitations are subject to same rejection as indicated with regard to claim 18, and because the receiver limitations are the reverse steps of the transmitter limitations it follows that the receiver limitations are rejected by way of symmetry since a receiver must communicate with a transmitter using the reverse steps of the transmitter.

Regarding claims 25 and 31, claims 25 and 31 have the same scope of claim 19, thus they are subject to the same rejection.

Regarding claims 26 and 32, claims 26 and 32 have the same scope of claim 20, thus they are subject to the same rejection.

6. Claims 21, 23, 27, 29, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bender in view of Bruckert as applied to claim 18 above, and further in view of Tiedemann Jr. et al, US (6,396,867).

Regarding claim 21, Bender in view of Bruckert discloses designating positions for control power bit insertion in designated positions as indicated above with regard to claim 18, except they don't disclose pseudo-random designation of position into which PCB (side information) is inserted.

Regarding claim 21, Bender in view of Bruckert discloses designating positions for control power bit insertion in designated positions as indicated above with regard to claim 18, except they don't disclose pseudo-random designation of position into which PCB (side information) is inserted.

However, Tiedemann in the same field of endeavor discloses pseudo-random selection of position into which power control bits are punctured in. See column 6, lines 23-38.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the pseudo-random position selection within a power group of Tiedemann instead of the well designated PCB insertion (side information insertion) of Bender in view Bruckert, so that puncturing and insertion of

symbols would not requires sophisticated circuitry that is needed for precise puncturing and PCB insertion.

Regarding claim 23, Bender in view of Bruckert discloses substantially the same limitations of claim 23 as indicated above with reference to claim 18, except they do not disclose using the least significant bits of a given number of a long code of a previous power control group.

However, Tiedemann discloses using the first 16 positions within a previous power group for PCB insertion. See column 6, lines 23-38.

Therefore, it would have been obvious to one ordinary person of skill in the art at the time of the invention to use the least significant bits of the long PN code of the power group of Tiedemann instead of the designated PCB (Power Control Bit) insertion of Bender in view of Bruckert so that non-ancillary information positions would be preserved for the main information.

Regarding claims 27 and 33, claims 27 and 33 have the same scope of claim 21, thus they are subject to the same rejection.

Regarding claims 29, 35, claims 29, 35, have the same scope of claim 23, thus they are subject to the same rejection.

Claims 22, 28 and 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bender in view of Bruckert as applied to claim 18 above, and further in view of Wheatley (already indicated).

Regarding claim 22, Bender in view of Bruckert discloses substantially all the limitations of claim 22, except that they don't disclose periodically designating a position into which side information is inserted at preset interval.

However, Wheatley discloses in the same field of endeavor, puncturing all the bits that are in locations  $6n+3$  and  $6n+5$ . See column 5, lines 10-17. (Corresponding to periodically designating a position into which side information is inserted at preset interval).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the periodic insertion method of Wheatley in carrying the PCB insertion in the system of Bender/ Bruckert so that efficient power allocation can be regulated on frame by frame basis.

Regarding claims 28, 34, claims 28, 34, have the same scope of claim 22, thus they are subject to the same rejection.

### ***Response to Arguments***

7. Applicant's arguments filed February 12, 2003 have been fully considered but they are not persuasive.

With regard to claim 1, Applicant argue that neither Wheatley nor Bruckert discloses "a puncturer for puncturing encoded data symbols generated from the puncturer as a function of a number of symbols of the side information, the positions of the punctured encoded data symbols chosen to lessen a channel degradation". Examiner disagree, Applicant is referred to the rejection indicated above.

With regard to claims 18, 24, 3019-23, 25-29, 31-35, Applicants argue that Bender, US (6,366,778) does not appear to be prior art. Examiner disagree, Bender reference claims priority to a provisional application filed in the US on February 19, 1998 a month before the foreign priority of Applicants' Application which has a priority date as of March 1998.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (703) 308-6069. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (703) 305-4744. The fax phone numbers

Art Unit: 2662

for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

AHMED ELALLAM  
Examiner  
Art Unit 2662  
May 5, 2003



HASSAN KIZOU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600